

## CLAIMS

What is claimed is:

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1. A method for identifying an agent which binds to a protein comprising an amino acid sequence of SEQ ID NO:49 or SEQ ID NO:53, comprising the steps of  
5 contacting the agent with the isolated protein under conditions appropriate for binding of the agent to the isolated protein, and detecting a resulting agent-protein complex.
  2. The method of Claim 1 wherein the step of contacting the agent with isolated protein is performed in an artificial membrane system.
  - 10 3. The method of Claim 1 wherein the isolated protein is in isolated plasma membrane.
  4. A method for identifying an agent which inhibits interaction between an isolated protein comprising amino acid sequence SEQ ID NO:49, or SEQ ID NO:53, and further comprising a ligand of said protein, comprising:  
15 (a) combining:
    - (1) said isolated protein;
    - (2) the ligand of said protein; and
    - (3) a candidate agent to be assessed for its ability to inhibit interaction between said protein of (1) and the ligand of (2),  
20 under conditions appropriate for interaction between the said protein of (1) and the ligand of (2);
  - (b) determining the extent to which said protein of (1) and the ligand of (2) interact; and
  - (c) comparing the extent determined in (b) with the extent to which  
25 interaction of said protein of (1) and the ligand of (2) occurs in the

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5. The method of Claim 4 wherein (a) is performed in an artificial membrane system.

- 10 6. The method of Claim 4 wherein said isolated protein is in isolated plasma membrane.

7. A method for identifying an agent which binds to a protein, said protein encoded by (1) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP2, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:48 under high stringency conditions, or by (2) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP4, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:52 under high stringency conditions, comprising the steps of isolating the protein, contacting the agent with the isolated protein under conditions appropriate for binding of the agent to the isolated protein, and detecting a resulting agent-protein complex.

- 25 8. The method of Claim 7 wherein the step of contacting the agent with the isolated protein is performed in an artificial membrane system.

9. The method of Claim 7 wherein the isolated protein is in isolated plasma membrane.

10. A method for identifying an agent which inhibits interaction between (1) an isolated protein, said protein being encoded by (i) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP2, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:48 under high stringency conditions, or by (ii) a polynucleotide having a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP4, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:52 under high stringency conditions and (2) a ligand of said protein, comprising:

(a) combining:

- (1) said isolated protein;
- (2) the ligand of said protein; and
- (3) a candidate agent to be assessed for its ability to inhibit interaction between said protein of (1) and the ligand of (2), under conditions appropriate for interaction between said protein of (1) and the ligand of (2);

(b) determining the extent to which said protein of (1) and the ligand of (2) interact; and

(c) comparing the extent determined in (b) with the extent to which interaction of said protein of (1) and the ligand of (2) occurs in the absence of the candidate agent to be assessed and under the same conditions appropriate for interaction of said protein of (1) with the ligand of (2);

wherein if the extent to which interaction of said protein of (1) and the ligand of (2) occurs is less in the presence of the candidate agent than in the absence of the

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candidate agent, the candidate agent is an agent which inhibits interaction between said protein and the ligand of said protein.

11. The method of Claim 10 wherein (a) is performed in an artificial membrane system.
- 5 12. The method of Claim 10 wherein said isolated protein is in isolated plasma membrane.
- 10 13. A method for identifying an agent which binds to a protein encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:49, or SEQ ID NO:53 comprising the steps of isolating the protein, contacting the agent with the isolated protein under conditions appropriate for binding of the agent to the isolated protein, and detecting a resulting agent-protein complex.
- 15 14. The method of Claim 13 wherein the step of contacting the agent with isolated protein is performed in an artificial membrane system.
15. The method of Claim 13 wherein the isolated protein is in isolated plasma membrane.
- 20 16. A method for identifying an agent which inhibits interaction between (i) an isolated protein encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 90% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:49, or (ii) a protein encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 90% amino acid

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sequence similarity with the amino acid sequence in SEQ ID NO:53 and a ligand of said protein, said method comprising:

(a) combining:

- (1) said isolated protein;
- (2) the ligand of said protein; and
- (3) a candidate agent to be assessed for its ability to inhibit interaction between said protein of (1) and the ligand of (2), under conditions appropriate for interaction between the said protein of (1) and the ligand of (2);

(b) determining the extent to which said protein of (1) and the ligand of (2) interact; and

(c) comparing the extent determined in (b) with the extent to which interaction of said protein of (1) and the ligand of (2) occurs in the absence of the candidate agent to be assessed and under the same conditions appropriate for interaction of said protein of (1) with the ligand of (2);

wherein if the extent to which interaction of said protein of (1) and the ligand of (2) occurs is less in the presence of the candidate agent than in the absence of the candidate agent, the candidate agent is an agent which inhibits interaction between said protein and the ligand of said protein.

17. The method of Claim 16 wherein (a) is performed in an artificial membrane system.

18. The method of Claim 16 wherein said isolated protein is in isolated plasma membrane.

19. A method for identifying an agent which is an inhibitor of fatty acid uptake by (i) a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein consisting of the amino acid sequence in SEQ ID

NO:49, or by (ii) a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein consisting of the amino acid sequence in SEQ ID NO:53, comprising the steps of:

- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
- b) measuring uptake of the fatty acid in the test cells; and
- c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;

wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.

20. An inhibitor of fatty acid uptake identified by the method of Claim 19.

21. The method of Claim 19 further comprising the steps of:

- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
- d) comparing the fatty acids of b) with the fatty acids of c);

whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

22. An inhibitor of fatty acid uptake identified by the method of Claim 21.

23. A method for identifying an agent which is an inhibitor of fatty acid uptake by a protein, said protein encoded by (i) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP2, wherein said polynucleotide

hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:48 under high stringency conditions, or by (ii) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP4, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:52 under high stringency conditions, comprising the steps of:

- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
- b) measuring uptake of the fatty acid in the test cells; and
- c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;

wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.

24. An inhibitor of fatty acid uptake identified by the method of Claim 23.

25. The method of Claim 23 further comprising the steps of:

- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
- d) comparing the fatty acids of b) with the fatty acids of c);

whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

26. An inhibitor of fatty acid uptake identified by the method of Claim 25.

27. A method for identifying an agent which is an inhibitor of fatty acid uptake by a protein, said protein being encoded by (i) a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:49 or by (ii) a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:53, comprising the steps of:
- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
  - b) measuring uptake of the fatty acid in the test cells; and
  - c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;
- wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.
28. An inhibitor of fatty acid uptake identified by the method of Claim 27.
29. The method of Claim 27 further comprising the steps of:
- a) administering the agent to one or more test animals;
  - b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
  - c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
  - d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.
30. An inhibitor of fatty acid uptake identified by the method of Claim 27.



31. A method for identifying an agent which is an inhibitor of (i) a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein comprising the amino acid sequence in SEQ ID NO:49 or (ii) a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein comprising the amino acid sequence in SEQ ID NO:53, comprising the steps of:
- 5 (a) introducing into host cells one or more vectors comprising a polynucleotide expressing said protein;
- (b) culturing a first aliquot of the host cells with fatty acid substrate of said protein and with an agent being tested as an inhibitor of said protein;
- 10 (c) culturing a second aliquot of the host cells with fatty acid substrate of said protein;
- (d) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells;
- wherein less uptake of the fatty acid substrate in the first aliquot compared to
- 15 the second aliquot is indicative that the agent is an inhibitor of said protein.
32. The method of Claim 31 further comprising the steps of:
- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from suitable control animals;
- 20 c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals; and
- d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.
- 25 33. A method for identifying an agent which is an inhibitor of a protein, said protein being encoded by (i) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP2, wherein said polynucleotide hybridizes to a

complement of a polynucleotide consisting of SEQ ID NO:48 under high stringency conditions, or by (ii) a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP4, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:52 under high stringency conditions, comprising the steps of:

- (a) introducing into host cells one or more vectors comprising a polynucleotide expressing said protein;
- (b) culturing a first aliquot of the host cells with fatty acid substrate of said protein and with an agent being tested as an inhibitor of said protein;
- (c) culturing a second aliquot of the host cells with fatty acid substrate of said protein;
- (d) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells;

wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of said protein.

34. The method of Claim 33 further comprising the steps of:

- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from suitable control animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals; and
- d) comparing the fatty acids of b) with the fatty acids of c);

whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

35. A method for identifying an agent which is an inhibitor of a protein, said protein being encoded by (i) a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid

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- of Claim 37 wherein the step of contacting is performed in an artificial membrane system
- of Claim 37 wherein the isolated protein is
- for identifying an agent which inhibits interaction comprising an amino acid sequence of SEQ ID NO: 1 as a ligand of said protein, comprising:
- combining:
- said isolated protein;
  - the ligand of said protein; and
  - a candidate agent to be assessed for its interaction between said protein of (1) and the ligand under conditions appropriate for interaction of protein of (1) and the ligand of (2);
- determining the extent to which said protein interacts; and
- comparing the extent determined in (b) with the interaction of said protein of (1) and the ligand in the absence of the candidate agent to be assessed under conditions appropriate for interaction of said protein and of (2);
- wherein the extent to which interaction of said protein is less in the presence of the candidate agent than in the absence of the candidate agent, the candidate agent is an agent which inhibits interaction of said protein and the ligand of said protein.
- of Claim 40 wherein (a) is performed in

42. The method of Claim 40 wherein said isolated protein is in isolated plasma membrane.
43. A method for identifying an agent which binds to a protein, said protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP6, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:56 under high stringency conditions, comprising the steps of isolating the protein, contacting the agent with the isolated protein under conditions appropriate for binding of the agent to the isolated protein, and detecting a resulting agent-protein complex.
44. The method of Claim 43 wherein the step of contacting the agent with the isolated protein is performed in an artificial membrane system.
45. The method of Claim 43 wherein the isolated protein is in isolated plasma membrane.
46. A method for identifying an agent which inhibits interaction between (1) an isolated protein, said protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP6, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:56 under high stringency conditions, and (2) a ligand of said protein, comprising:
- (a) combining:
    - (1) said isolated protein;
    - (2) the ligand of said protein; and
    - (3) a candidate agent to be assessed for its ability to inhibit interaction between said protein of (1) and the ligand of (2),

- (b) determining the extent to which said protein of (1) and the ligand of (2) interact; and
- (c) comparing the extent determined in (b) with the extent to which interaction of said protein of (1) and the ligand of (2) occurs in the absence of the candidate agent to be assessed and under the same conditions appropriate for interaction of said protein of (1) with the ligand of (2);

wherein if the extent to which interaction of said protein of (1) and the ligand of (2) occurs is less in the presence of the candidate agent than in the absence of the candidate agent, the candidate agent is an agent which inhibits interaction between said protein and the ligand of said protein.

- 15 47. The method of Claim 46 wherein (a) is performed in an artificial membrane system.
48. The method of Claim 46 wherein the isolated protein is in isolated plasma membrane.
- 20 49. A method for identifying an agent which binds to a protein encoded by a nucleic acid encoding a fatty acid transport protein consisting of an amino acid sequence sharing at least about 95% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:57 comprising the steps of isolating the protein, contacting the agent with the isolated protein under conditions appropriate for binding of the agent to the isolated protein, and detecting a resulting agent-protein complex.
- 25 50. The method of Claim 49 wherein the step of contacting the agent with isolated protein is performed in an artificial membrane system.

51. The method of Claim 49 wherein the isolated protein is in isolated plasma membrane.

52. A method for identifying an agent which inhibits interaction between an isolated protein encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 90% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:57 and a ligand of said protein, said method comprising:

(a) combining:

(1) said isolated protein;

(2) the ligand of said protein; and

(3) a candidate agent to be assessed for its ability to inhibit interaction between said protein of (1) and the ligand of (2), under conditions appropriate for interaction between the said protein of (1) and the ligand of (2);

(b) determining the extent to which said protein of (1) and the ligand of (2) interact; and

(c) comparing the extent determined in (b) with the extent to which interaction of said protein of (1) and the ligand of (2) occurs in the absence of the candidate agent to be assessed and under the same conditions appropriate for interaction of said protein of (1) with the ligand of (2);

wherein if the extent to which interaction of said protein of (1) and the ligand of (2) occurs is less in the presence of the candidate agent than in the absence of the candidate agent, the candidate agent is an agent which inhibits interaction between said protein and the ligand of said protein.

53. The method of Claim 52 wherein (a) is performed in an artificial membrane system.

54. The method of Claim 52 wherein said isolated protein is in isolated plasma membrane.
55. A method for identifying an agent which is an inhibitor of fatty acid uptake by a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein consisting of the amino acid sequence in SEQ ID NO:57, comprising the steps of:
- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
  - b) measuring uptake of the fatty acid in the test cells; and
  - c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;
- wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.
56. An inhibitor of fatty acid uptake identified by the method of Claim 55.
57. The method of Claim 55 further comprising the steps of:
- a) administering the agent to one or more test animals;
  - b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
  - c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
  - d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.
58. An inhibitor of fatty acid uptake identified by the method of Claim 57.



59. A method for identifying an agent which is an inhibitor of fatty acid uptake by a protein, said protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP6, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:56 under high stringency conditions, comprising the steps of:
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- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
- b) measuring uptake of the fatty acid in the test cells; and
- 10 c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;
- wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.
- 15 60. An inhibitor of fatty acid uptake identified by the method of Claim 59.
61. The method of Claim 59 further comprising the steps of:
- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
- 20 c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
- d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.
- 25 62. An inhibitor of fatty acid uptake identified by the method of Claim 61.

63. A method for identifying an agent which is an inhibitor of fatty acid uptake by a protein, said protein being encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid sequence similarity with the amino acid sequence in SEQ ID NO:57, comprising the steps of:

- a) maintaining test cells expressing said polynucleotide in the presence of a fatty acid and an agent to be tested as an inhibitor of fatty acid uptake;
- b) measuring uptake of the fatty acid in the test cells; and
- c) comparing uptake of the fatty acid in the test cells with uptake of the fatty acid in suitable control cells;

wherein lower uptake of the fatty acid in the test cells compared to uptake of the fatty acid in the control cells is indicative that the agent is an inhibitor of fatty acid uptake by said protein.

64. An inhibitor of fatty acid uptake identified by the method of Claim 63.

65. The method of Claim 63 further comprising the steps of:

- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from said test animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals;
- d) comparing the fatty acids of b) with the fatty acids of c);

whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

66. An inhibitor of fatty acid uptake identified by the method of Claim 65.

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67. A method for identifying an agent which is an inhibitor of a protein encoded by a polynucleotide comprising a nucleotide sequence which encodes a protein comprising the amino acid sequence in SEQ ID NO:57, comprising the steps of:
- (a) introducing into host cells one or more vectors comprising a polynucleotide expressing said protein;
  - (b) culturing a first aliquot of the host cells with fatty acid substrate of said protein and with an agent being tested as an inhibitor of said protein;
  - (c) culturing a second aliquot of the host cells with fatty acid substrate of said protein;
  - (d) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells;
- wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of said protein.
68. The method of Claim 67 further comprising the steps of:
- (a) administering the agent to one or more test animals;
  - (b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from suitable control animals;
  - (c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals; and
  - (d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.
69. A method for identifying an agent which is an inhibitor of a protein, said protein being encoded by a polynucleotide comprising a nucleotide sequence which encodes a naturally occurring allelic variant of a polypeptide consisting of the amino acid sequence of FATP6, wherein said polynucleotide hybridizes to a complement of a polynucleotide consisting of SEQ ID NO:56 under high stringency conditions, comprising the steps of:

- 5 (a) introducing into host cells one or more vectors comprising a polynucleotide expressing said protein;
- (b) culturing a first aliquot of the host cells with fatty acid substrate of said protein and with an agent being tested as an inhibitor of said protein;
- (c) culturing a second aliquot of the host cells with fatty acid substrate of said protein;
- (d) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells;

10 wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of said protein.

70. The method of Claim 69 further comprising the steps of:

- 15 a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from suitable control animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals; and
- d) comparing the fatty acids of b) with the fatty acids of c);
- whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

20 71. A method for identifying an agent which is an inhibitor of a protein, said protein being encoded by a nucleic acid encoding a fatty acid transport protein comprising an amino acid sequence sharing at least about 95% amino acid sequence homology with the amino acid sequence in SEQ ID NO:57, comprising the steps of:

- 25 (a) introducing into host cells one or more vectors comprising a polynucleotide expressing said protein;
- (b) culturing a first aliquot of the host cells with fatty acid substrate of said protein and with an agent being tested as an inhibitor of said protein;

- 5 wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of said protein.

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whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

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- (e) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells identified as expressing the cell surface protein;

wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of the fatty acid transport protein.

74. The method of Claim 73 wherein the host cells regulably express the FATP4 gene.

75. The method of Claim 73 wherein the host cells are prokaryotes.

76. The method of Claim 73 wherein the prokaryotes are *E. coli*.

77. The method of Claim 73 wherein the fatty acid is a radioactively labeled fatty acid.

78. A method for identifying an agent which is an inhibitor of FATP4, comprising the steps of:

- (a) introducing into cells one or more vectors comprising a gene encoding a cell surface protein and a nucleic acid encoding FATP4;
- (b) contacting the host cells with anti-cell surface protein antibody and labeled fatty acid substrate of FATP4;
- (c) contacting a first aliquot of the host cells with an agent being tested as an inhibitor of FATP4, while leaving a second aliquot of the host cells uncontacted with the agent;
- (d) identifying, in the first and second aliquots, the host cells expressing the cell surface protein by detecting the anti-cell surface protein antibody bound to the host cells; and

- (e) measuring, in the first and second aliquots, uptake of the fatty acid substrate of the host cells identified as expressing the cell surface protein;

wherein less uptake of the fatty acid substrate in the first aliquot compared to the second aliquot is indicative that the agent is an inhibitor of FATP4.

79. The method of Claim 78 further comprising the steps of:

- a) administering the agent to one or more test animals;
- b) measuring exogenously supplied fatty acids in one or more samples of tissue or bodily fluid from suitable control animals;
- c) measuring exogenously supplied fatty acids in one or more comparable samples of tissue or bodily fluid from suitable control animals; and
- d) comparing the fatty acids of b) with the fatty acids of c);

whereby, lower fatty acids in step b) than in step c) is indicative that the agent is an inhibitor of said protein.

80. The method of Claim 78 wherein the cell surface protein is CD2.

81. The method of Claim 78 wherein the fatty acid substrate is BODIPY-labeled.

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